

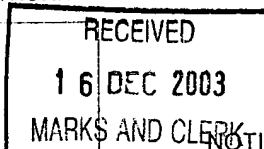
PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

SUCKLING Andrew
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PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

13.12.2004

Applicant's or agent's file reference
AMS.P52317WO

IMPORTANT NOTIFICATION

International application No.
PCT/GB 03/04476

International filing date (day/month/year)
13.10.2003

Priority date (day/month/year)
12.10.2002

Applicant
WESTERNGECO SEISMIC HOLDINGS LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference AMS.P52317WO		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/04476	International filing date (day/month/year) 13.10.2003	Priority date (day/month/year) 12.10.2002	
International Patent Classification (IPC) or both national classification and IPC G01V1/38			
Applicant WESTERNGECO SEISMIC HOLDINGS LIMITED et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 4 sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 07.05.2004		Date of completion of this report 13.12.2004	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Schneiderbauer, K Telephone No. +49 89 2399-7613	



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/04476

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-19 as originally filed

Claims, Numbers

1-24 received on 11.10.2004 with letter of 05.10.2004

Drawings, Sheets

1/9-9/9 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/04476

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1,2,7-9,12,14-20,24
Inventive step (IS)	Yes: Claims	
	No: Claims	1-24
Industrial applicability (IA)	Yes: Claims	1-24
	No: Claims	

2. Citations and explanations

see separate sheet

1.) Reference is made to the following documents:

D1: US-A-4 641 287 (NEELEY WALTER P) 3 February 1987 (1987-02-03)
D2: US-A-4 376 301 (ROBERTS F ALEX) 8 March 1983 (1983-03-08)
D3: FR-A-2 620 536 (GEOPHYSIQUE CIE GLE) 17 March 1989 (1989-03-17)
D4: WO 84/03153 A (KONGSBERG VAPENFAB AS) 16 August 1984 (1984-08-16)
D5: COURT I N: "STREAMER COMPASS VALIDATION AND VERIFICATION"
GEOPHYSICS, SOCIETY OF EXPLORATION GEOPHYSICISTS. TULSA, US,
vol. 58, no. 4, 1 April 1993 (1993-04-01), pages 589-592, XP000367520 ISSN:
0016-8033

2.) Technical field: marine seismics

3.) Novelty (Art.33(1),(2) PCT) and inventive step (Art.33(1),(3) PCT) of the independent claims 1 and 12:

The present application does not meet the requirements of **Article 33(1),(2) PCT**, because the subject-matters of claim 1 and the corresponding method claim 12 are not new over the prior art as disclosed in D2 or D3.

D2 and D3 each disclose a method for determining the position of an acoustic receiver, comprising:

- determining a plurality of acoustic ranges (D2: col.4, li.35-38; D3: page 6, li.28-page 7, li.3)
- from at least a first signal source position and a second signal source position to the acoustic receiver (D2: fig.1, ref.28, 30; D3: fig.1b, ref. R1 and R2; page 5, li.29-33)
- ascertaining a non-acoustic constraint on the acoustic receiver's position (D2: depth detector or compass readings; col.4, li.38-40; D3: compass measurements with compass in cables; page 7, li.30 - page 8, li.4)
- and determining the acoustic receiver's position from the first and second acoustic ranges and the non-acoustic constraint (D2: col.4, li.35-40; D3: page 7, li.30 - page 8, li.4)
- the non-acoustic constraint being: an angular orientation of the acoustic receiver (D2: col.4, li.38-40: pinpoint the hydrophone position with the appropriate compass headings; D3: page 7, li.30 - page 8, li.4; compass in cable gives also indication of angular receiver orientation)

4.) The dependent claims:

4.1) The subject-matters of claims 2, 7-9, 14-20 and 24 are disclosed in documents D2 or D3 (s. also cited passages in the ISR) and are therefore not novel (**Art. 33(1), (2) PCT**).

4.2) The subject-matters of the dependent claims 3-6, 10, 11, 13 and 21-23 are not considered to be inventive (**Art. 33(1),(3) PCT**). They are either already disclosed in D4 (which describes the possibility of adaptively steering a streamer by mathematical modelling and a dynamic compensation for noise influence (D4; page 10, paragr. 3 and 4) or refer to conventional modelling techniques (s. also the applicant's statement on page 13 of his application, li.7-12).

5.) Industrial applicability (Art.33(1),(4) PCT):

Beyond any doubt the invention, as defined in claims 1-24, is industrially applicable.